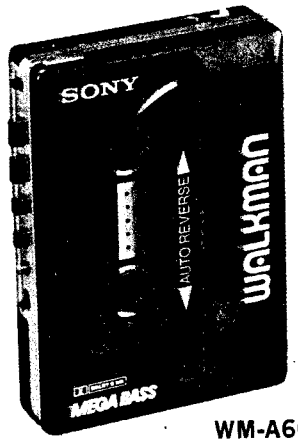
# WM-A602/B602/AF604/BF604

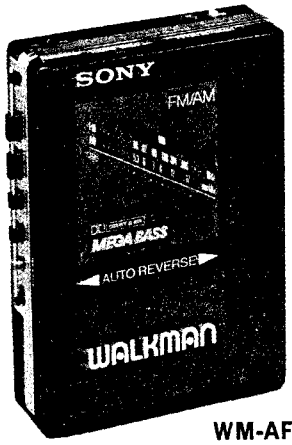
# SERVICE MANUAL

*US Model*
*Canadian Model*
*WM-A602/AF604*

*AEP Model*
*UK Model*
*E Model*
*WM-B602/BF604*




**WM-A602**




**WM-AF604**

## SPECIFICATION

**Radio**
**(WM-AF604/BF604)**

FM: 87.6 – 108MHz (US, Canadian)
FM: 87.5 – 108MHz (Italian)
FM: 87.6 – 107MHz (West Germany)
FM: 87.6 – 107.9MHz (AEP, UK, E)
AM: 530 – 1710kHz (US, Canadian)
AM: 531 – 1602kHz (AEP, UK, E, West Germany)
AM: 526.5 – 1606.5kHz (Italian)

**Power requirements**

1.5 V DC Battery size AA (R6) × 1
NC-5WM rechargeable battery
External DC 1.5 V power sources

**Battery life**
**(Approximate hours)**

| | Playback | FM |
|---|---|---|
| Sony Alkaline AM3 (N) | 7 hrs. | 30 hrs. |
| Rechargeable NC-5WM | 2 hrs. | 8 hrs. |

**Accessories supplied**

Stereo headphones (open-air type. 1) Beltclip (1)
Battery charger (1) Rechargeable battery (1)

**Optional accessories***

Rechargeable battery NC-6WM, NC-5WM
Car battery cord DCC-70
Battery case EBP-500B

* Your dealer may not handle these optional accessories. Please ask the dealer for detailed information.

Design and specifications subject to change without notice.

| Model Name Using Similar Mechanism | WM-150 | |
|---|---|---|
| Tape Transport Mechanism Type | WM-A602 B602 | MF-WMA602-01 |
| | WM-AF604 BF604 | MF-WMFAF604-01 |

## Notes on battery

- Remove the battery when you will not use the unit for a long time to prevent damage from battery leakage and corrosion.
- The internal battery is disconnected when you plug a cord into DC IN 1.5V.
- When the sound becomes unstable, try a new battery.

## Handling the rechargeable battery

- Recharge when the sound becomes noisy or distorted.

## External power sources

The following external power sources can be connected through the DC IN 1.5 V jack.

- House current using an AC-D1M AC power adaptor
- 12 V car battery using a DCC-70 car battery cord
- Two size D (R20) batteries using an EBP-500B battery case

The illustration shows the polarity of DC IN 1.5 V jack. Use only a power cord having the same polarity.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

# CASSETTE PLAYER

*WM-A602/B602*

# FM/AM STEREO CASSETTE PLAYER

*WM-AF604/BF604*

SONY

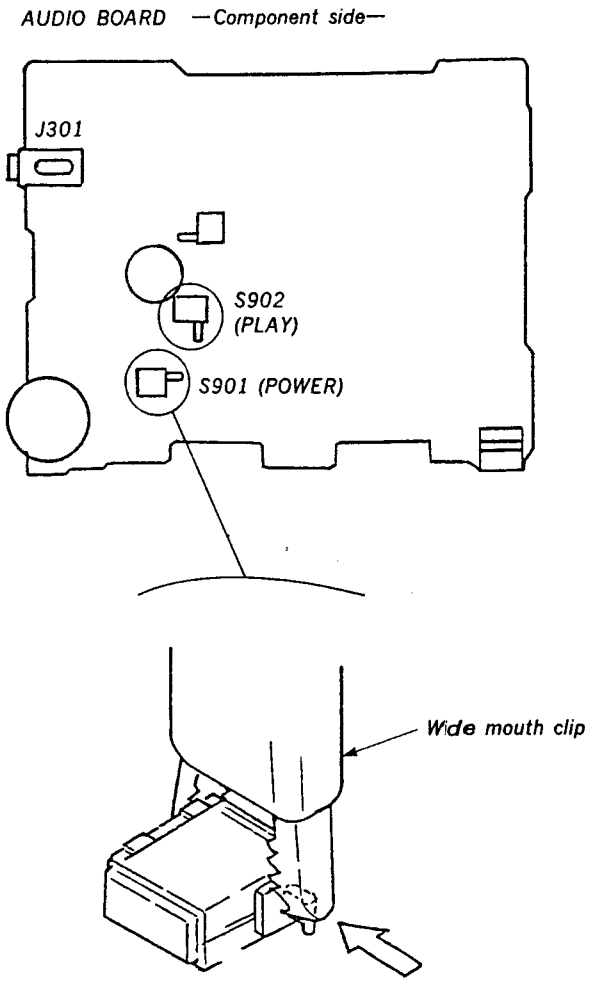
MICROFILM

## TABLE OF CONTENTS


| *Section* | *Title* | *Page* |
|---|---|---|
| **SECTION 1 GENERAL** | | |
| 1-1. | Tape Playback | 3 |
| 1-2. | Radio Reception | 3 |
| **SECTION 2 DISASSEMBLY** | | |
| 2-1. | Tuner Unit Removal (WM-AF604/BF604) | 4 |
| **SECTION 3 ADJUSTMENTS** | | |
| 3-1. | Mechanical Measurements | 5 |
| 3-2. | Electrical Adjustments | 6 |
| **SECTION 4 DIAGRAMS** | | |
| 4-1. | Printed Wiring Board | 7 |
| 4-2. | Schematic Diagram | 9 |
| 4-3. | IC Block Diagrams | 12 |
| **SECTION 5 EXPLODED VIEWS** | | |
| 5-1. | Cabinet Section | 13 |
| 5-2. | Mechanism Section (1) | 14 |
| 5-3. | Mechanism Section (2) | 15 |
| **SECTION 6 ELECTRICAL PARTS LIST** | | 16 |


## SERVICING NOTES

When you are movement check states of removed the audio board, press the PLAY (▶) button, slide on the S901 (POWER) and S902 (PLAY) switches.




### Flexible Circuit Board Repairing

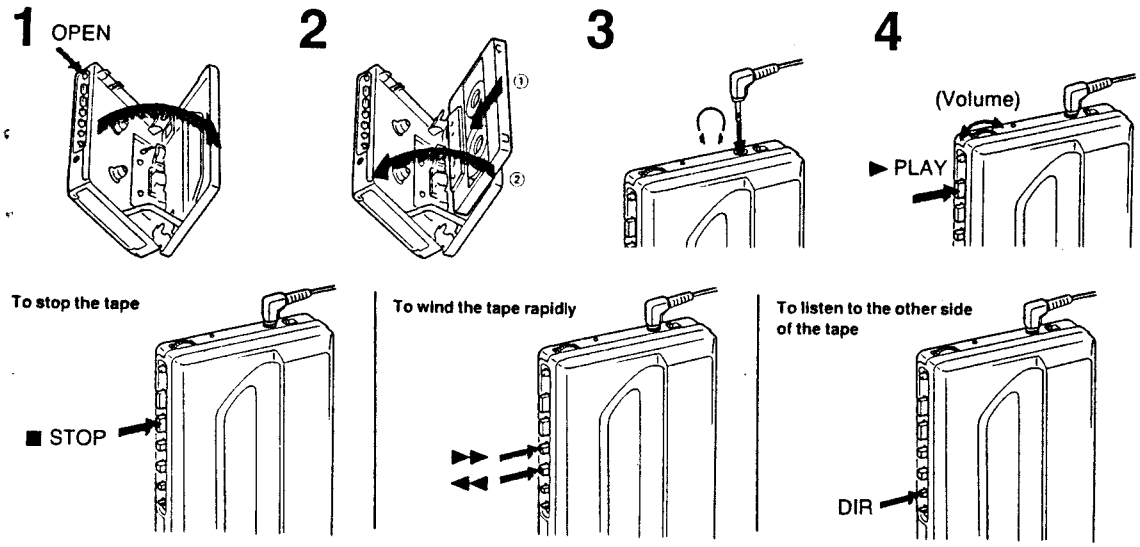
- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (Within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

# SECTION 1
# GENERAL

## 1-1. TAPE PLAYBACK




MEGA BASS

**Listening to powerful and heavy sound**

| | |
|---|---|
| **Set to the desired position**<br>**Bass is boosted in the order of NORM, MID and MAX.** | NORM MID MAX |

DOLBY NR

**Getting the best performance from your tape**

| | |
|---|---|
| For Dolby NR processed tapes | DOLBY NR ON |

MODE

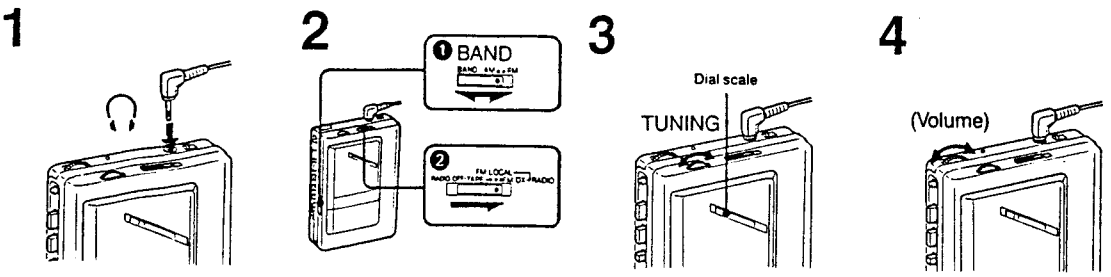
**On playback operation**

| | |
|---|---|
| **Playing back both sides of the cassette once**<br>When the playback starts from the reverse side of the cassette, the unit will be shut off at the end of that side. | MODE |
| **Playing back both sides of the cassette repeatedly** | MODE |

TAPE

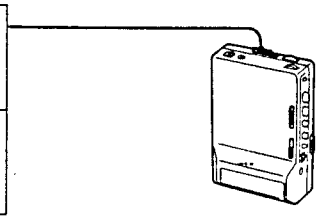
| | |
|---|---|
| For normal (TYPE I) tapes | TAPE NORM |
| For $CrO_2$ (TYPE II) or metal (TYPE IV) tapes | TAPE CO-METAL |

## 1-2. RADIO RECEPTION (WM-AF604/BF604)




**To improve FM sensitivity**

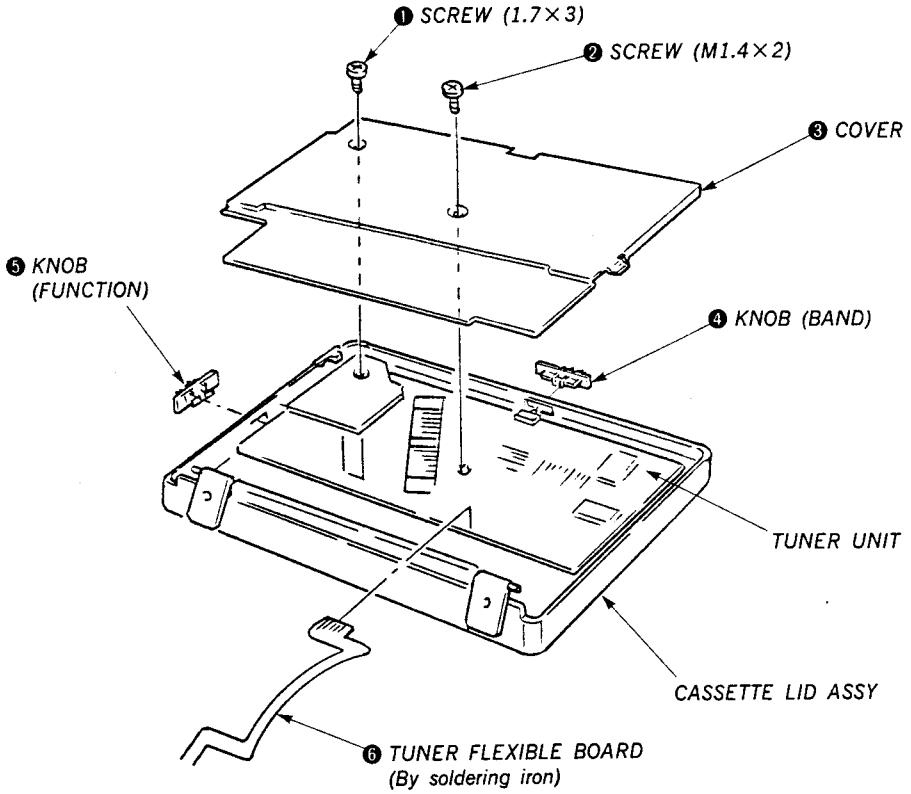
| | |
|---|---|
| For normal reception<br>Set to FM DX. | FM DX |
| If a very strong station signal causes noise.<br>The noise will be reduced.<br>Set to FM LOCAL. | FM LOCAL |



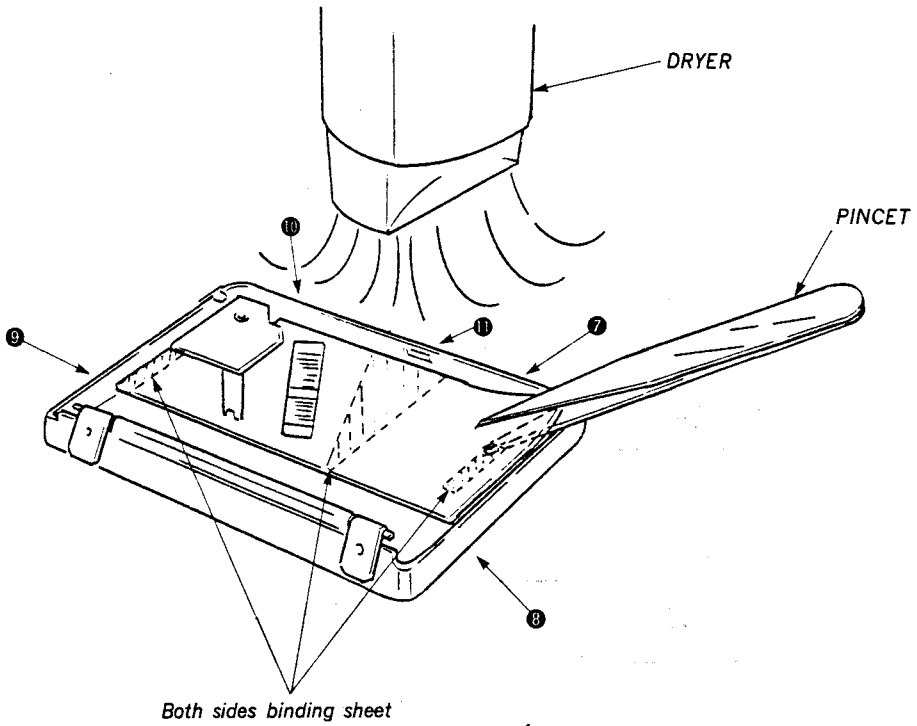
# SECTION 2
# DISASSEMBLY

**Note :** Follow the disassembly procedure the numerical order given.

## 2-1. TUNER UNIT REMOVAL (WM-AF604/BF604)




*In order of ❼ to ⓫ with wam up by dryer slowly insert a pinset.*



# SECTION 3
# ADJUSTMENTS

## 3-1. MECHANICAL MEASUREMENTS

### PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

   playback head — pinch roller
   capstan — rubber belts

2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the reted power supply voltage (1.3V) unless otherwise noted.

**Torque Measurement**

| Mode | Torque meter | Meter reading |
|---|---|---|
| FWD | CQ-102C | 20-38g•cm (0.27-0.52oz•inch) |
| FWD Back Tension | | 0.5-4g•cm (0.007-0.05oz•inch) |
| REV | CQ-102RB | 20-38g•cm (0.27-0.52oz•inch) |
| REV Back Tension | | 0.5-3.5g•cm (0.007-0.05oz•inch) |
| FF, REW | CQ-201B | more than 60 g·cm (more than 0.83 oz·inch) |

**Tape Tension Measurement**

| Mode | Torque meter | Meter reading |
|---|---|---|
| FWD | CQ-403A | more than 40 g·cm (more than 0.54 oz·inch) |
| REV | CQ-403R | |

## 3-2. ELECTRICAL ADJUSTMENTS

### Playback Head Azimuth Check

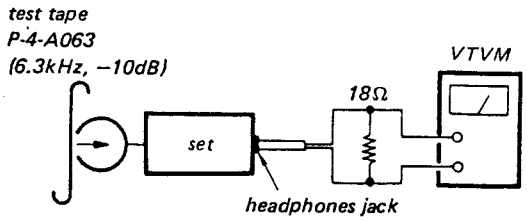
- **Perform this check both in FWD and REV mode.**

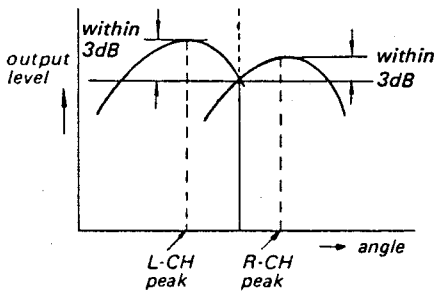
**Note:** This set is not featured the head azimuth adjustment. When replacing the head, check the both L-ch and R-ch output levels and also those phases.

**Procedure:**

1. Level Check

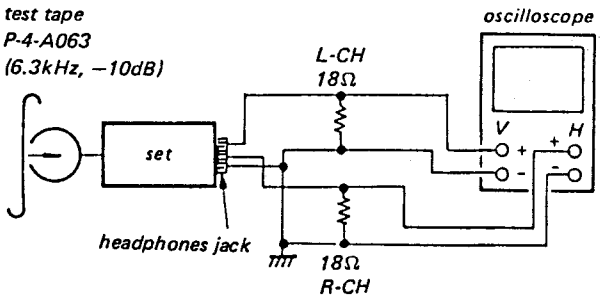
   Mode: playback

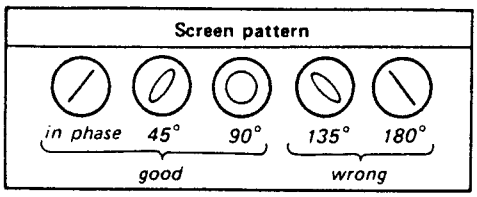



2. Phase Check

   Mode: playback

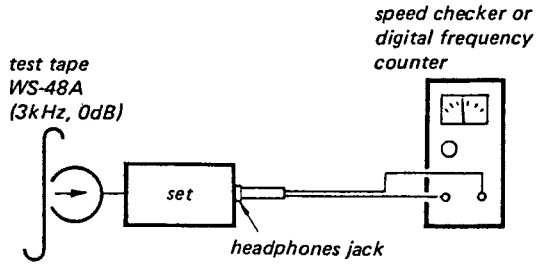



### Tape Speed Adjustment

**Procedure:**

Mode: playback

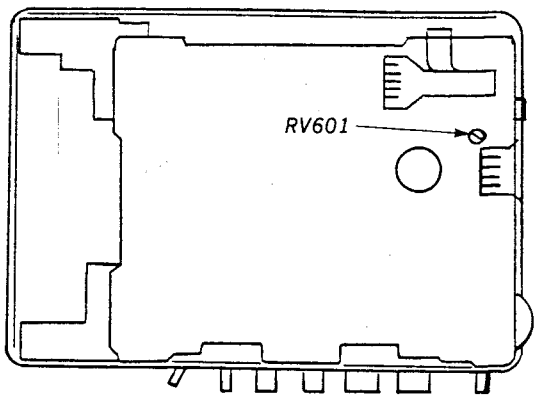



**Adjustment value :**

| speed checker | digital frequency counter |
|---|---|
| ±1.0% | 2,970-3,030Hz |

Frequency difference between the beginning and the end of the tape should be within ± 2.5% (±75Hz).

**Adjustment Location:**

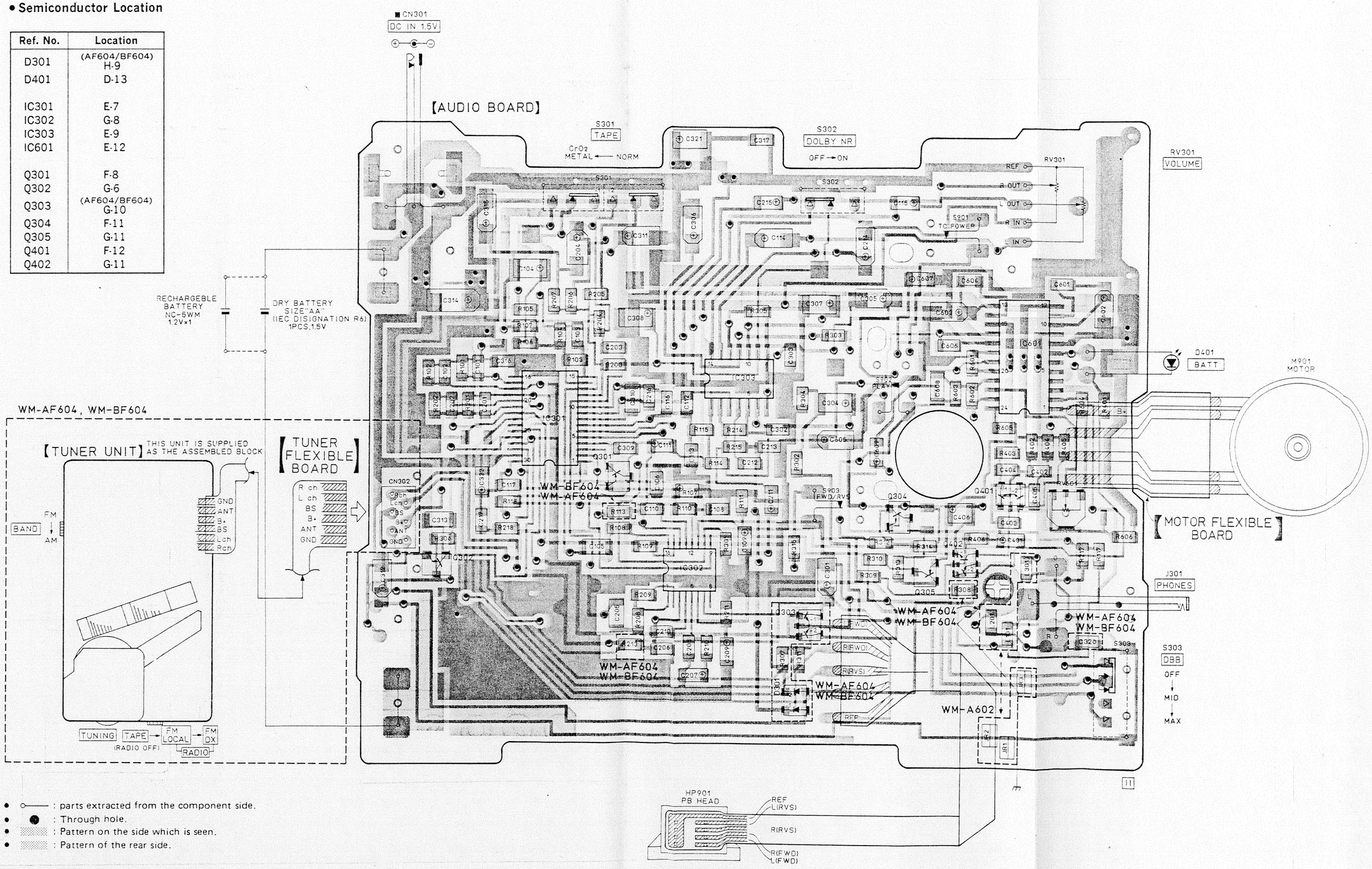


# SECTION 4
# DIAGRAMS

## 4-1. PRINTED WIRING BOARD

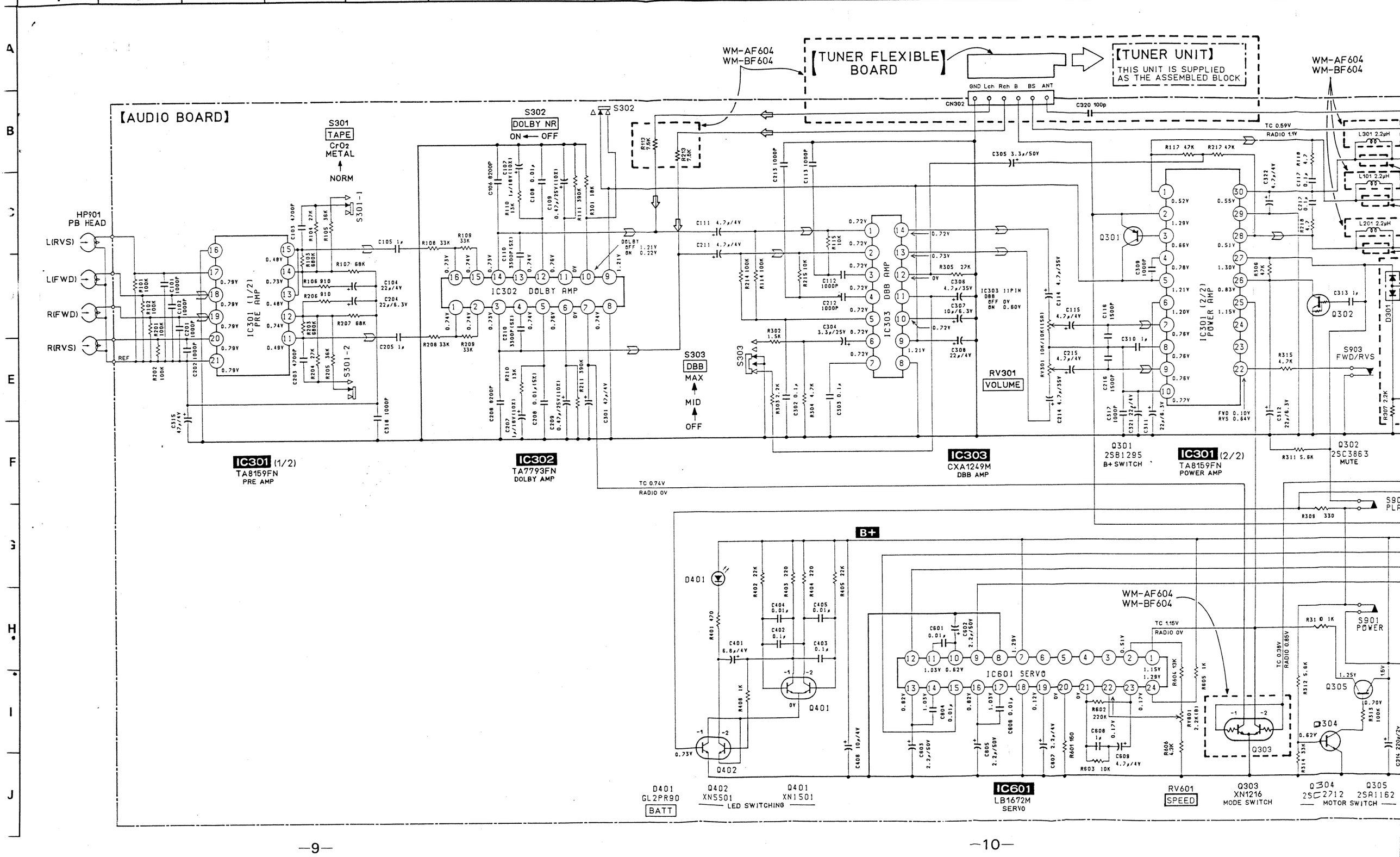
• **Semiconductor Location**

| Ref. No. | Location |
|---|---|
| D301 | (AF604/BF604) H-9 |
| D401 | D-13 |
| IC301 | E-7 |
| IC302 | G-8 |
| IC303 | E-9 |
| IC601 | E-12 |
| Q301 | F-8 |
| Q302 | G-6 |
| Q303 | (AF604/BF604) G-10 |
| Q304 | F-11 |
| Q305 | G-11 |
| Q401 | F-12 |
| Q402 | G-11 |



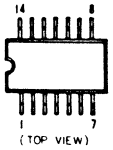

• ○—— : parts extracted from the component side.
• ● : Through hole.
• ▨ : Pattern on the side which is seen.
• ▨ : Pattern of the rear side.

4-2. SCHEMATIC DIAGRAM • Refer to page 12 for IC Block Diagrams.

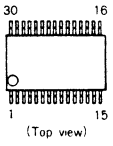


## • SEMICONDUCTOR LEAD LAYOUTS

**CXA1249M**

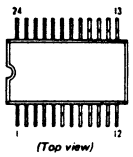



**TA8159FN**

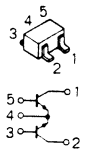



**2SA1162**
**2SB1295-UL6**
**2SC2712G**
**2SC3863**

**LB1672M**

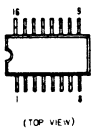



**XN1216**

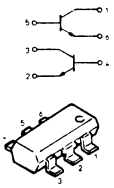



**MA713**

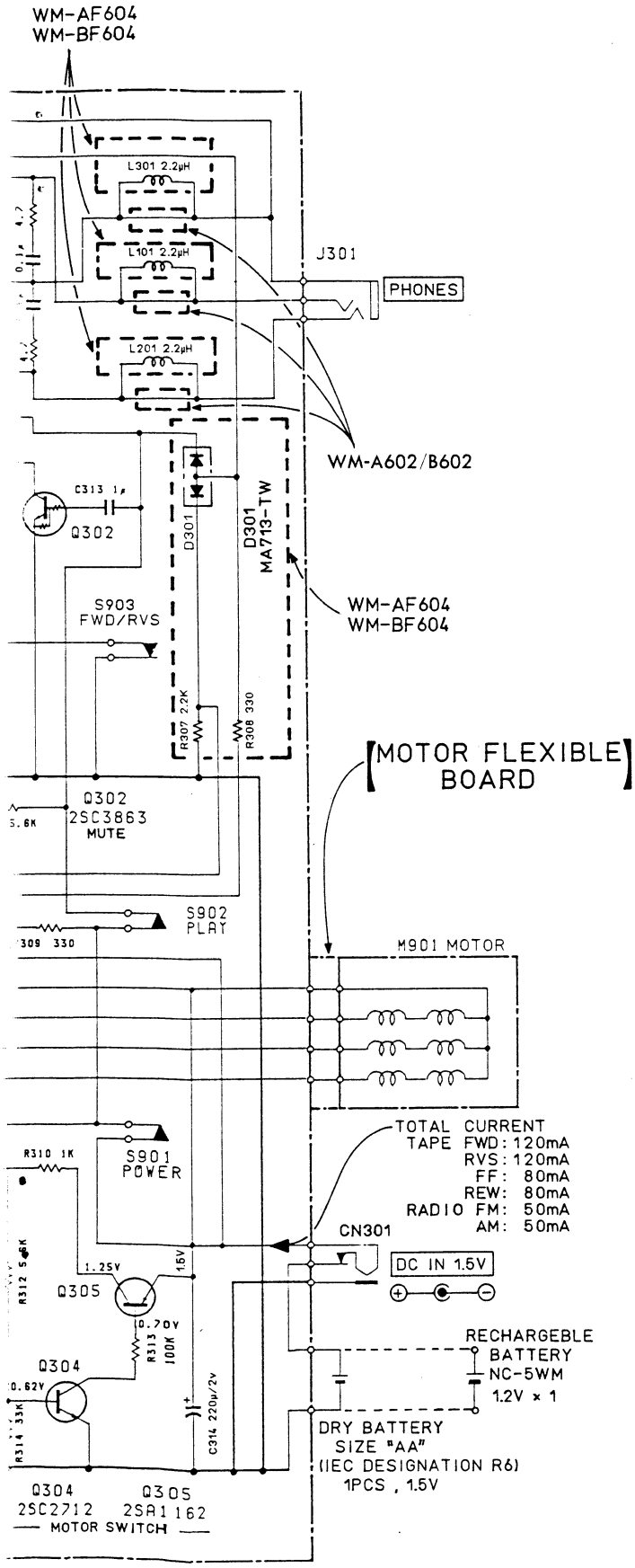
**TA7793FN-ER**




**XN5501**



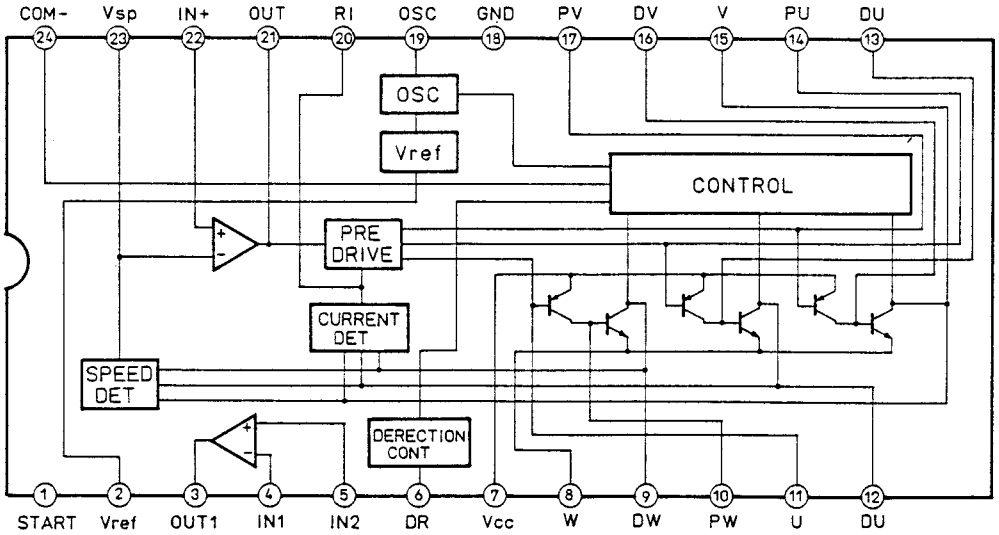
**GL2PR90**



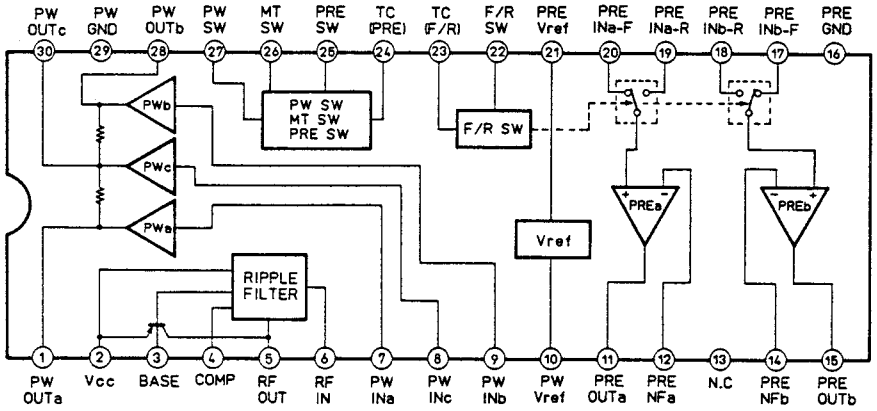

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/8W or less unless otherwise specified.
- ▭ : adjustment for repair.
- Power voltage is dc 1.3V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark: FWD
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇨ : PB

## 4-3. IC BLOCK DIAGRAMS

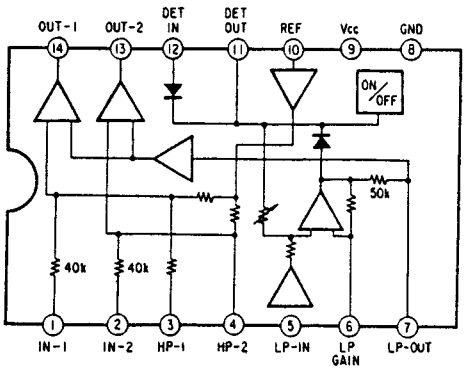
### LB1672


COM- Vsp IN+ OUT RI OSC GND PV DV V PU DU
24 23 22 21 20 19 18 17 16 15 14 13
OSC
Vref
CONTROL
PRE DRIVE
CURRENT DET
SPEED DET
DERECTION CONT
1 2 3 4 5 6 7 8 9 10 11 12
START Vref OUT1 IN1 IN2 DR Vcc W DW PW U DU

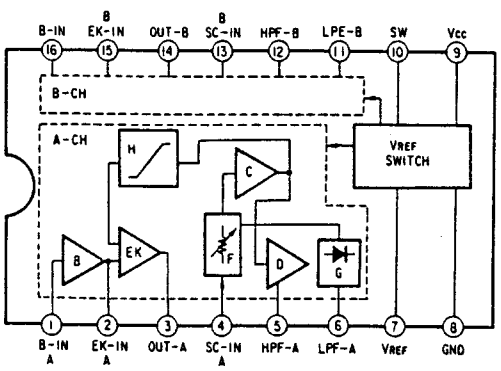
### TA-8159FN


PW OUTc PW GND PW OUTb PW SW MT SW PRE SW TC (PRE) TC (F/R) F/R SW PRE Vref PRE INa-F PRE INa-R PRE INb-R PRE INb-F PRE GND
30 29 28 27 26 25 24 23 22 21 20 19 18 17 16
PWb
PWc
PWa
PW SW
MT SW
PRE SW
F/R SW
Vref
PREa
PREb
RIPPLE FILTER
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
PW OUTa Vcc BASE COMP RF OUT RF IN PW INa PW INc PW INb PW Vref PRE OUTa PRE NFa N.C PRE NFb PRE OUTb

### CXA-1249M




### TA7793F

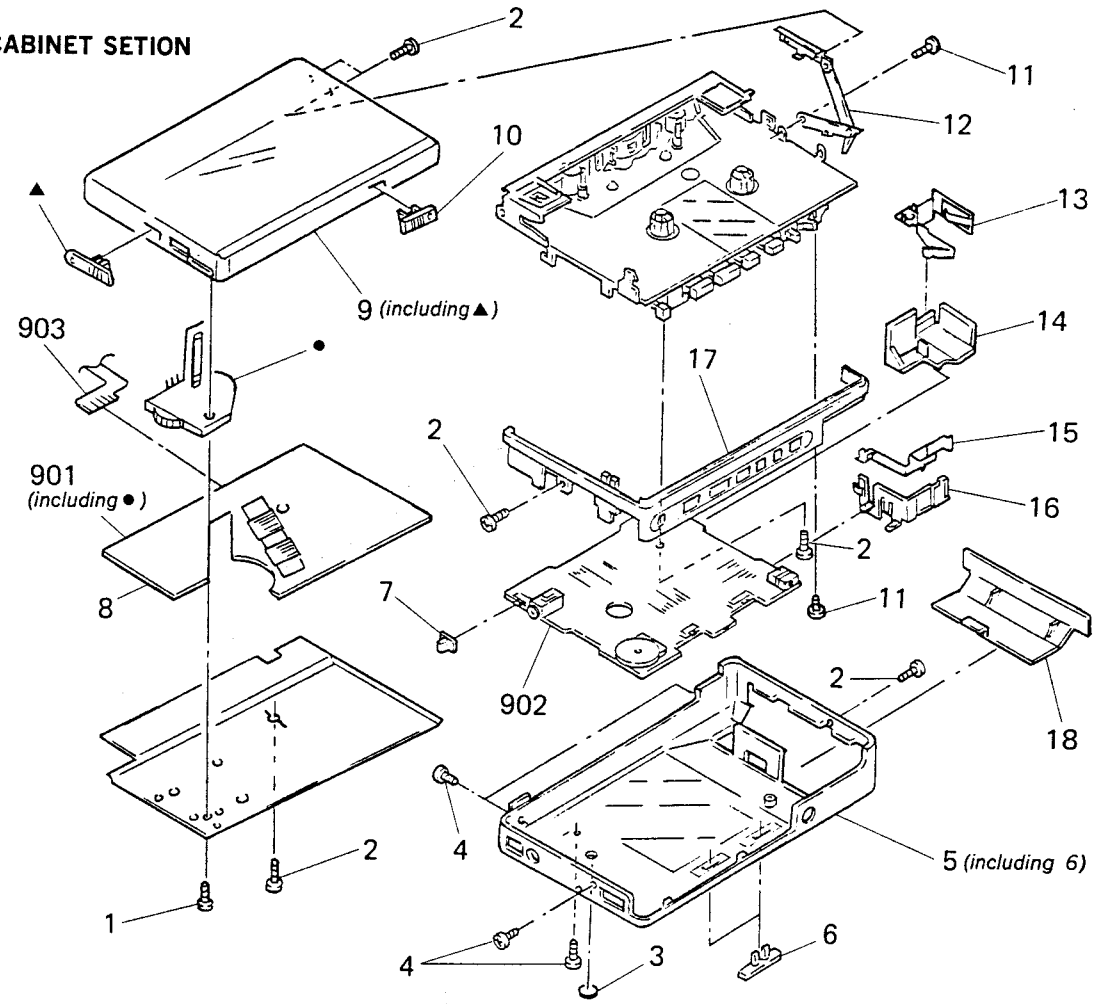


# SECTION 5
# EXPLODED VIEWS

**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

## 5-1. CABINET SETION

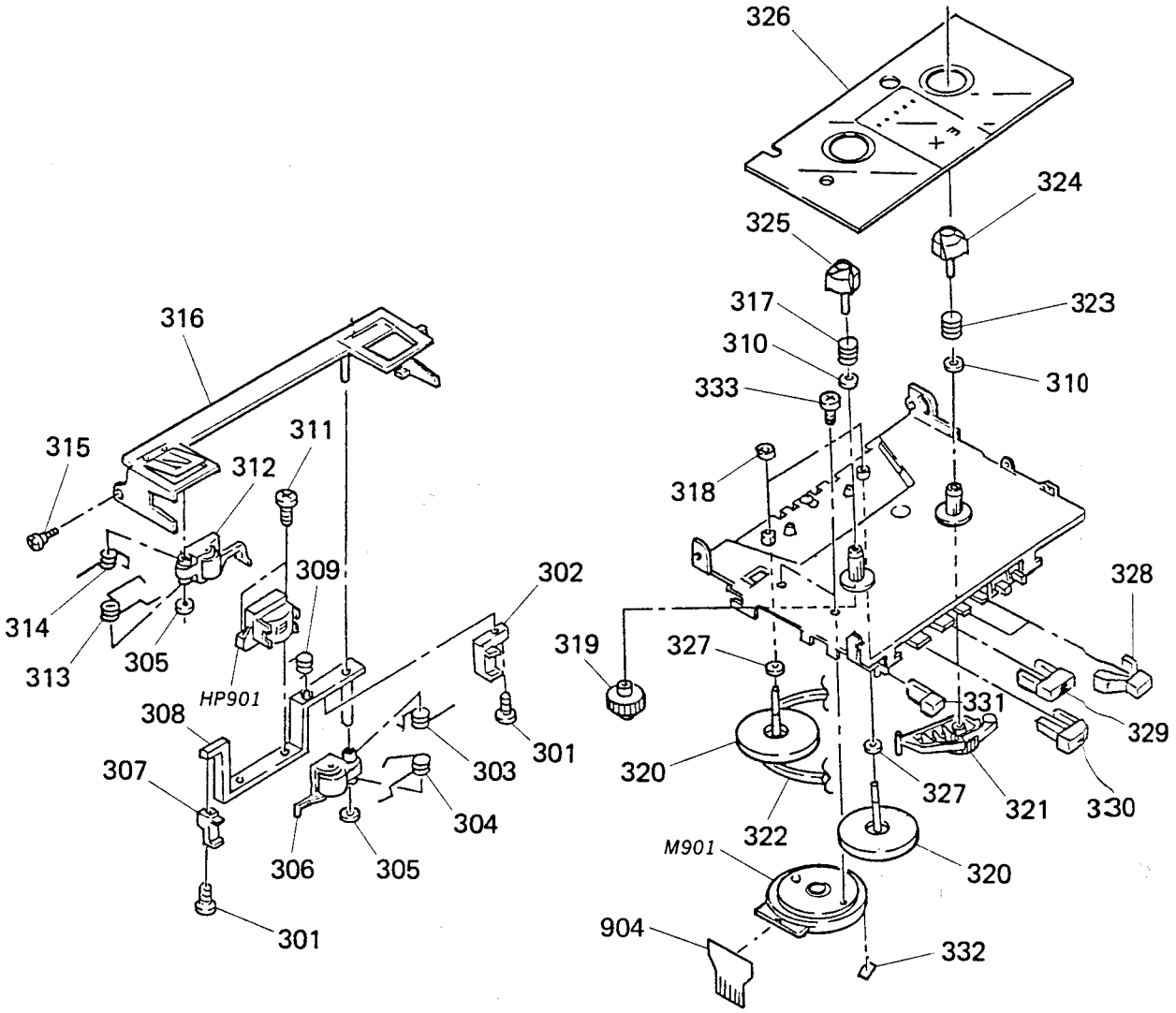



| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 1 | 3-318-382-21 | SCREW (1.7X3), TAPPING | |
| 2 | 3-704-197-11 | SCREW (M1.4X2.0), LOCKING | |
| 3 | 3-342-380-01 | SHEET, SPEED HOLE | |
| 4 | 3-704-197-31 | SCREW (M1.4X3.0), LOCKING | |
| 5 | X-3352-015-1 | (A602/B602)...CABINET (REAR) ASSY | |
| | X-3352-017-1 | (AF604/BF604:AEP,UK,E,WG) | |
| | | ....CABINET (REAR) ASSY | |
| | X-3352-022-1 | (BF604:IT)....CABINET (REAR) ASSY | |
| 6 | 3-352-045-01 | KNOB (TAPE) | |
| 7 | 3-348-186-01 | KNOB (DBB) | |
| 8 | *3-352-061-01 | COVER | |
| 9 | X-3352-014-1 | (A602/B602).....LID (TC-1)ASSY, CASSETTE | |
| | X-3352-018-1 | (AF604).....LID (CF-1)ASSY, CASSETTE | |
| | X-3352-020-1 | (BF604:AEP,UK,E) | |
| | | ...LID (CF-1)ASSY, CASSETTE | |
| | X-3352-021-1 | (BF604:IT,WG)...LID (CF-1)ASSY, CASSETTE | |

| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 10 | 3-352-055-01 | KNOB (BAND) | |
| 11 | 3-704-197-01 | SCREW (M1.4X1.6), LOCKING | |
| 12 | X-3352-013-1 | ARM ASSY, CLICK | |
| 13 | 3-352-048-01 | TERMINAL BOARD, MINUS | |
| 14 | 3-352-050-01 | HOLDER (B), TERMINAL | |
| 15 | 3-352-047-01 | TERMINAL BOARD, PLUS | |
| 16 | 3-352-049-01 | HOLDER (A), TERMINAL | |
| 17 | 3-352-053-01 | ORNAMENT, BUTTON | |
| 18 | 3-352-046-01 | LID, BATTERY CASE | |
| 901 | 1-465-150-11 | (AF604).....TUNER UNIT | |
| | 1-465-151-11 | (BF604:AEP,UK,E)...TUNER UNIT | |
| | 1-465-152-11 | (BF604:WG).....TUNER UNIT | |
| | 1-465-153-11 | (BF604:IT).....TUNER UNIT | |
| 902 | A-3070-259-A | (AF604/BF604)...MOUNTED PCB, AUDIO | |
| | A-3270-602-A | (A602/B602).....MOUNTED PCB, AUDIO | |
| 903 | 1-630-708-11 | (AF604/BF604)...PC BOARD, FLEXIBLE (TUNER) | |

## 5-2. MECHANISM SECTION (1)

(WM-A602/B602 : MF-WMA602-01
WM-AF604/BF604 : MF-WMFAF604-01)

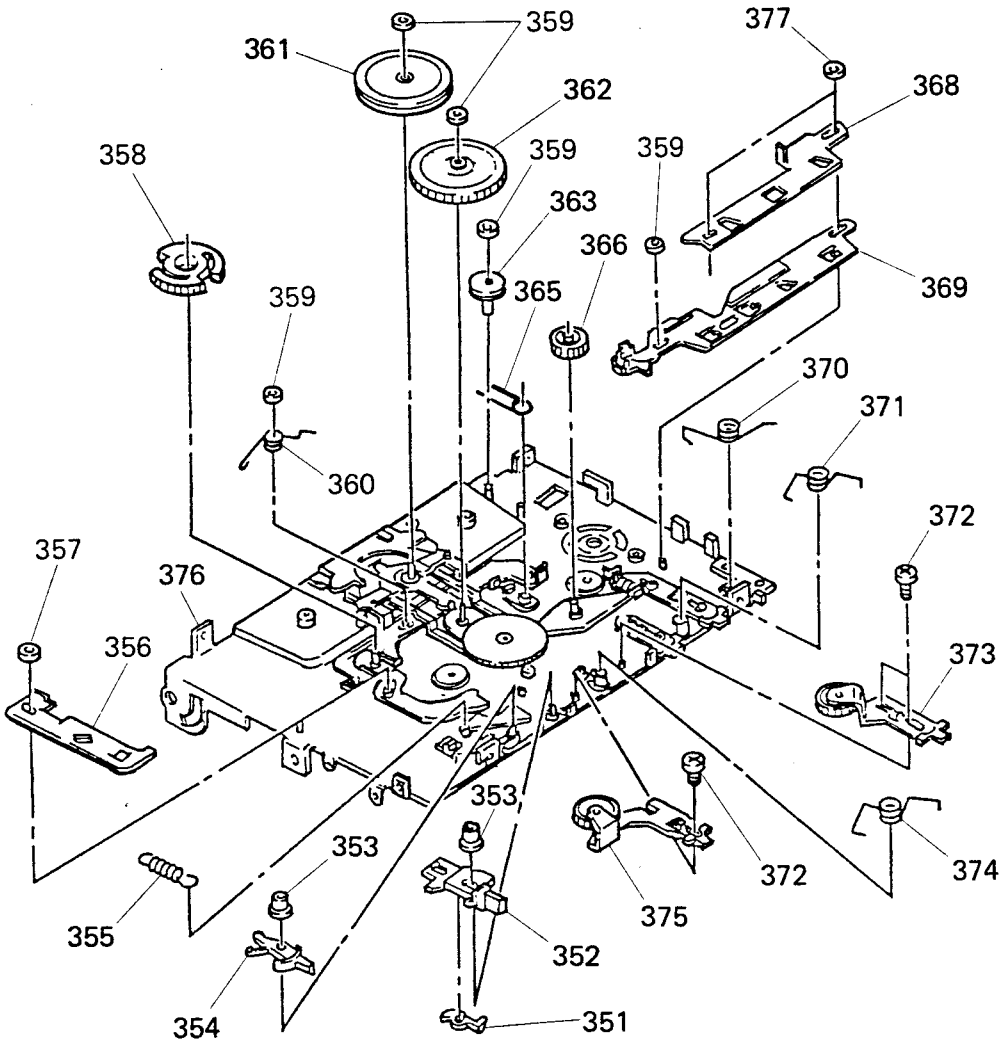



| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 301 | 3-348-998-31 | SCREW (M1.4X2.5), TAPPING, PAN | |
| 302 | *3-344-693-01 | GUIDE (LEFT) | |
| 303 | 3-341-468-01 | SPRING (R) | |
| 304 | 3-352-082-01 | SPRING (PINCH RX), TORSION | |
| 305 | 3-341-473-01 | WASHER (MP) | |
| 306 | X-3331-035-1 | PINCH LEVER (R) ASSY | |
| 307 | *3-344-694-01 | GUIDE (RIGHT) | |
| 308 | *3-345-725-01 | LEVER (AZ), HEAD | |
| 309 | 3-347-205-01 | SPRING (HD LEVER), TORSION | |
| 310 | 3-348-990-11 | WASHER | |
| 311 | 3-348-998-71 | SCREW (M1.4X4.5), TAPPING, PAN | |
| 312 | X-3331-036-1 | PINCH LEVER (N) ASSY | |
| 313 | 3-352-081-01 | SPRING (PINCH NX), TORSION | |
| 314 | 3-341-469-01 | SPRING (N) | |
| 315 | 3-352-005-01 | SCREW (M1.4), PRECISION STEP | |
| 316 | X-3352-009-1 | (A602/B602).....HOLDER (TX) ASSY | |
| | X-3352-010-1 | (AF604/BF604)...HOLDER (TX) ASSY | |

| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 317 | 3-348-989-01 | SPRING, COMPRESSION | |
| 318 | 3-331-007-21 | WASHER | |
| 319 | 3-348-151-01 | GEAR (TAKE-UP REEL) | |
| 320 | X-3352-007-1 | WHEEL (R.X) ASSY, CAPSTAN | |
| 321 | X-3348-110-1 | LEVER ASSY, PICK UP | |
| 322 | 3-352-022-01 | BELT | |
| 323 | 3-348-107-01 | SPRING, COMPRESSION | |
| 324 | 3-348-149-01 | REEL, SUPPLY | |
| 325 | 3-348-150-01 | REEL, TAKE-UP | |
| 326 | 3-352-010-01 | COVER (X), MD | |
| 327 | 3-321-394-21 | WASHER | |
| 328 | 3-352-025-01 | BUTTON (FR.X) | |
| 329 | 3-352-024-01 | BUTTON (STOP.X) | |
| 330 | 3-352-023-01 | BUTTON (PLAY.X) | |
| 331 | 3-348-129-01 | BUTTON (OPEN) | |
| 332 | 3-703-929-01 | SPACER (P) | |
| 333 | 3-349-825-01 | SCREW | |
| 904 | 1-629-873-11 | PC BOARD, MOTOR FLEXIBLE | |
| HP901 | 1-543-605-11 | HEAD, MAGNETIC (PLAYBACK) | |
| M901 | 1-541-660-11 | MOTOR | |

## 5-3. MECHANISM SECTION (2)

(WM-A602/B602 : MF-WMA602-01
WM-AF604/BF604 : MF-WMFAF604-01)




| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 351 | 3-348-101-01 | RATCHET | |
| 352 | 3-348-156-01 | LEVER, DIR | |
| 353 | 3-348-102-01 | BUSHING | |
| 354 | 3-348-105-01 | LEVER, MODE SELECTION | |
| 355 | 3-348-163-01 | SPRING, TENSION | |
| 356 | *3-352-002-01 | LEVER (X), TRIGGER | |
| 357 | 3-348-953-11 | WASHER | |
| 358 | 3-352-032-01 | GEAR (X), CAM | |
| 359 | 3-348-996-01 | WASHER | |
| 360 | 3-348-172-01 | SPRING (S.OFF), TORSION | |
| 361 | 3-352-007-01 | PULLEY (MIDWAY.X) | |
| 362 | X-3352-006-1 | CLUTCH (X) ASSY | |
| 363 | 3-352-008-01 | PULLEY (REVERSE.X) | |

| No. | Part No. | Description | Remarks |
|---|---|---|---|
| 365 | 3-348-159-01 | SPRING (NR), TORSION | |
| 366 | 3-352-021-01 | GEAR (N.X) | |
| 368 | *3-352-028-01 | LEVER (X), SW | |
| 369 | X-3348-102-1 | LEVER ASSY, LOCK | |
| 370 | 3-348-162-01 | SPRING (LOCK), TORSION | |
| 371 | 3-348-103-01 | SPRING (PLAY), TORSION | |
| 372 | 3-348-160-01 | SCREW (M1.4X1.3),PRECISION PAN | |
| 373 | X-3352-004-1 | LEVER (X) ASSY, FF | |
| 374 | 3-348-168-01 | SPRING (FR), TORSION | |
| 375 | X-3352-005-1 | LEVER (X) ASSY, REW | |
| 376 | X-3352-011-1 | CHASSIS (X) COMPLETE ASSY | |
| 377 | 3-348-953-21 | WASHER | |

# SECTION 6
# ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

| Ref.No. | Part No. | Description | | |
|---|---|---|---|---|
| 901 | 1-465-150-11 | (AF604).....TUNER UNIT | | |
| | 1-465-151-11 | (BF604:AEP,UK,E)...TUNER UNIT | | |
| | 1-465-152-11 | (BF604:WG).....TUNER UNIT | | |
| | 1-465-153-11 | (BF604:IT).....TUNER UNIT | | |
| 902 | A-3070-259-A | (AF604/BF604)...MOUNTED PCB, AUDIO | | |
| | A-3270-602-A | (A602/B602).....MOUNTED PCB, AUDIO | | |
| 903 | 1-630-708-11 | (AF604/BF604) ...PC BOARD, FLEXIBLE (TUNER) | | |
| 904 | 1-629-873-11 | PC BOARD, MOTOR FLEXIBLE | | |
| C101 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C102 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C103 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 5% | 50V |
| C104 | 1-126-590-11 | ELECT 22MF | 20% | 4V |
| C105 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C106 | 1-163-020-00 | CERAMIC CHIP 0.0082MF | 5% | 50V |
| C107 | 1-135-199-21 | TANTAL. CHIP 1MF | 10% | 16V |
| C108 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 5% | 50V |
| C109 | 1-135-195-21 | TANTAL. CHIP 0.47MF | 10% | 25V |
| C110 | 1-163-015-00 | CERAMIC CHIP 0.0033MF | 5% | 50V |
| C111 | 1-135-183-11 | TANTAL. CHIP 4.7MF | 20% | 4V |
| C112 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C113 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C114 | 1-126-603-11 | ELECT 4.7MF | 20% | 35V |
| C115 | 1-135-183-11 | TANTAL. CHIP 4.7MF | 20% | 4V |
| C116 | 1-163-145-00 | CERAMIC CHIP 0.0015MF | 10% | 50V |
| C117 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C201 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C202 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C203 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 5% | 50V |
| C204 | 1-126-605-11 | ELECT 22MF | 20% | 6.3V |
| C205 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C206 | 1-163-020-00 | CERAMIC CHIP 0.0082MF | 5% | 50V |
| C207 | 1-135-199-21 | TANTAL. CHIP 1MF | 10% | 16V |
| C208 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 5% | 50V |
| C209 | 1-135-195-21 | TANTAL. CHIP 0.47MF | 10% | 25V |
| C210 | 1-163-015-00 | CERAMIC CHIP 0.0033MF | 5% | 50V |
| C211 | 1-135-183-11 | TANTAL. CHIP 4.7MF | 20% | 4V |
| C212 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C213 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C214 | 1-126-603-11 | ELECT 4.7MF | 20% | 35V |
| C215 | 1-135-183-11 | TANTAL. CHIP 4.7MF | 20% | 4V |
| C216 | 1-163-145-00 | CERAMIC CHIP 0.0015MF | 10% | 50V |
| C217 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C301 | 1-126-607-11 | ELECT 47MF | 20% | 4V |
| C302 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C303 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C304 | 1-126-609-11 | ELECT 3.3MF | 20% | 25V |
| C305 | 1-126-602-11 | ELECT 3.3MF | 20% | 50V |
| C306 | 1-126-603-11 | ELECT 4.7MF | 20% | 35V |
| C307 | 1-126-591-11 | ELECT 10MF | 20% | 6.3V |
| C308 | 1-126-590-11 | ELECT 22MF | 20% | 4V |
| C309 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C310 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C311 | 1-126-605-11 | ELECT 22MF | 20% | 6.3V |
| C312 | 1-126-605-11 | ELECT 22MF | 20% | 6.3V |
| C313 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C314 | 1-126-608-11 | ELECT 220MF | 20% | 2V |
| C315 | 1-126-607-11 | ELECT 47MF | 20% | 4V |
| C316 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C317 | 1-163-009-11 | CERAMIC CHIP 0.001MF | 10% | 50V |
| C320 | 1-163-117-00 | (AF604/BF604) ...CERAMIC CHIP 100PF | 10% | 50V |
| C321 | 1-126-590-11 | ELECT 22MF | 20% | 4V |
| C322 | 1-135-183-11 | TANTAL. CHIP 4.7MF | 20% | 4V |
| C401 | 1-135-184-11 | TANTAL. CHIP 6.8MF | 20% | 4V |
| C402 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C403 | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| C404 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | 50V |
| C405 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | 50V |
| C406 | 1-135-185-11 | TANTAL. CHIP 10MF | 20% | 4V |
| C601 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | 50V |
| C602 | 1-126-601-11 | ELECT 2.2MF | 20% | 50V |
| C603 | 1-126-601-11 | ELECT 2.2MF | 20% | 50V |
| C604 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | 50V |
| C605 | 1-126-601-11 | ELECT 2.2MF | 20% | 50V |
| C606 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | 50V |
| C607 | 1-135-149-21 | TANTAL. CHIP 2.2MF | 10% | 4V |
| C608 | 1-162-638-11 | CERAMIC CHIP 1MF | | 16V |
| C609 | 1-135-183-11 | TANTAL. CHIP 4.7MF | 20% | 4V |
| CN301 | 1-568-255-11 | JACK, EXTERNAL POWER 1P (DC IN 1.5V) | | |
| CN302 | 1-568-253-11 | (AF604/BF604)...HOUSING, CONNECTOR 7P | | |
| D301 | 8-719-404-16 | (AF604/BF604)...DIODE MA713 | | |
| D401 | 8-719-976-16 | DIODE GL2PR90 | | |
| HP901 | 1-543-605-11 | HEAD, MAGNETIC (PLAYBACK) | | |
| IC301 | 8-759-231-86 | IC TA8159FN | | |
| IC302 | 8-759-230-90 | IC TA7793FN | | |
| IC303 | 8-759-805-09 | IC CXA1249M | | |
| IC601 | 8-759-821-20 | IC LB1672M | | |
| J301 | 1-568-254-11 | JACK 1P (PHONES) | | |

| Ref.No. | Part No. | Description |
|---|---|---|
| JR1 | 1-216-295-00 | (A602/B602)...METAL GLAZE 0 5% 1/10W |
| JR2 | 1-216-295-00 | (A602/B602)...METAL GLAZE 0 5% 1/10W |
| JR3 | 1-216-295-00 | (A602/B602)...METAL GLAZE 0 5% 1/10W |
| L101 | 1-410-997-31 | (AF604/BF604)...INDUCTOR CHIP 2.2UH |
| L201 | 1-410-997-31 | (AF604/BF604)...INDUCTOR CHIP 2.2UH |
| L301 | 1-410-997-31 | (AF604/BF604)...INDUCTOR CHIP 2.2UH |
| M901 | 1-541-660-11 | MOTOR |
| Q301 | 8-729-807-87 | TRANSISTOR 2SB1295-UL6 |
| Q302 | 8-729-805-38 | TRANSISTOR 2SC3863 |
| Q303 | 8-729-421-23 | (AF604/BF604)...TRANSISTOR XN1216 |
| Q304 | 8-729-271-22 | TRANSISTOR 2SC2712G |
| Q305 | 8-729-216-22 | TRANSISTOR 2SA1162 |
| Q401 | 8-729-421-23 | TRANSISTOR XN1216 |
| Q402 | 8-729-402-75 | TRANSISTOR XN5501 |
| R101 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R102 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R103 | 1-216-117-00 | METAL GLAZE 680K 5% 1/10W |
| R104 | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W |
| R105 | 1-216-086-00 | METAL GLAZE 36K 5% 1/10W |
| R106 | 1-216-048-00 | METAL GLAZE 910 5% 1/10W |
| R107 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W |
| R108 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W |
| R109 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W |
| R110 | 1-216-076-00 | METAL GLAZE 13K 5% 1/10W |
| R111 | 1-216-111-00 | METAL GLAZE 390K 5% 1/10W |
| R113 | 1-216-070-00 | (AF604/BF604) ...METAL GLAZE 7.5K 5% 1/10W |
| R114 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R115 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W |
| R117 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W |
| R118 | 1-216-308-00 | METAL GLAZE 4.7 5% 1/10W |
| R201 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R202 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R203 | 1-216-117-00 | METAL GLAZE 680K 5% 1/10W |
| R204 | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W |
| R205 | 1-216-086-00 | METAL GLAZE 36K 5% 1/10W |
| R206 | 1-216-048-00 | METAL GLAZE 910 5% 1/10W |
| R207 | 1-216-093-00 | METAL GLAZE 68K 5% 1/10W |
| R208 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W |
| R209 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W |
| R210 | 1-216-076-00 | METAL GLAZE 13K 5% 1/10W |
| R211 | 1-216-111-00 | METAL GLAZE 390K 5% 1/10W |
| R213 | 1-216-070-00 | (AF604/BF604) ...METAL GLAZE 7.5K 5% 1/10W |
| R214 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R215 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W |
| R217 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W |
| R218 | 1-216-308-00 | METAL GLAZE 4.7 5% 1/10W |
| R301 | 1-216-079-00 | METAL GLAZE 18K 5% 1/10W |
| R302 | 1-216-053-00 | METAL GLAZE 1.5K 5% 1/10W |
| R303 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W |
| R304 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W |
| R305 | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W |
| R306 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W |
| R307 | 1-216-057-00 | (AF604/BF604) ...METAL GLAZE 2.2K 5% 1/10W |
| R308 | 1-216-037-00 | (AF604/BF604) ...METAL GLAZE 330 5% 1/10W |
| R309 | 1-216-037-00 | METAL GLAZE 330 5% 1/10W |
| R310 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W |

| Ref.No. | Part No. | Description |
|---|---|---|
| R311 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W |
| R312 | 1-216-067-00 | METAL GLAZE 5.6K 5% 1/10W |
| R313 | 1-216-097-00 | METAL GLAZE 100K 5% 1/10W |
| R314 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W |
| R315 | 1-216-065-00 | METAL GLAZE 4.7K 5% 1/10W |
| R401 | 1-216-041-00 | METAL GLAZE 470 5% 1/10W |
| R402 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W |
| R403 | 1-216-033-00 | METAL GLAZE 220 5% 1/10W |
| R404 | 1-216-033-00 | METAL GLAZE 220 5% 1/10W |
| R405 | 1-216-081-00 | METAL GLAZE 22K 5% 1/10W |
| R406 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W |
| R601 | 1-216-029-00 | METAL GLAZE 150 5% 1/10W |
| R602 | 1-216-105-00 | METAL GLAZE 220K 5% 1/10W |
| R603 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W |
| R604 | 1-216-076-00 | METAL GLAZE 13K 5% 1/10W |
| R605 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W |
| R606 | 1-216-064-00 | METAL GLAZE 4.3K 5% 1/10W |
| RV301 | 1-238-488-11 | RES, VAR, CARBON 10K/10K (VOLUME) |
| RV601 | 1-238-202-11 | RES, ADJ, METAL GLAZE 2.2K (SPEED) |
| S301 | 1-571-277-11 | SWITCH, SLIDE (TAPE) |
| S302 | 1-571-275-11 | SWITCH, SLIDE (DOLBY NR) |
| S303 | 1-571-506-11 | SWITCH, SLIDE (DBB) |
| S901 | 1-571-585-11 | SWITCH, PUSH (1 KEY)(POWER) |
| S902 | 1-571-585-11 | SWITCH, PUSH (1 KEY)(PLAY) |
| S903 | 1-571-585-11 | SWITCH, PUSH (1 KEY)(FWD/RVS) |

## ACCESSORY & PACKING MATERIAL

| | | |
|---|---|---|
| ⚠ | 1-528-224-11 | (AF604:Canadian)..BATTERY CHARGER (BC-7F) |
| | 1-528-176-11 | (A602/AF604)....BATTERY, STORAGE (NC-5WM) |
| ⚠ | 1-528-221-21 | (A602/AF604:US)...BATTERY CHARGER (BC-7F) |
| | 3-347-262-01 | (AF604:Canadian)...CASE, CARRYING |
| * | 3-352-066-01 | (A602).....CUSHION (UPPER) |
| * | 3-352-067-01 | (A602/AF604)...CUSHION (LOWER) |
| * | 3-352-070-01 | (AF604).....CUSHION (UPPER) |
| * | 3-352-091-01 | (B602).....CUSHION (UPPER) |
| * | 3-352-092-01 | (BF604/B602)...CUSHION (LOWER) |
| * | 3-352-096-01 | (BF604).....CUSHION (UPPER) |
| * | 3-352-068-01 | (A602).....INDIVIDUAL CARTON |
| * | 3-352-071-01 | (AF604).....INDIVIDUAL CARTON |
| * | 3-352-074-01 | (B602:AEP,UK).....INDIVIDUAL CARTON |
| * | 3-352-076-01 | (BF604:AEP,UK,WG,IT)...INDIVIDUAL CARTON |
| * | 3-352-093-01 | (B602:E).....INDIVIDUAL CARTON |
| * | 3-352-097-01 | (BF604:E).....INDIVIDUAL CARTON |
| | 3-750-105-11 | (B602).....MANUAL, INSTRUCTION |
| | 3-750-105-21 | (A602).....MANUAL, INSTRUCTION |
| | 3-750-105-41 | (B602:AEP).....MANUAL, INSTRUCTION |
| | 3-750-110-11 | (AF604:Canadian/BF604) ...MANUAL, INSTRUCTION |
| | 3-750-110-21 | (AF604:US).....MANUAL, INSTRUCTION |
| | 3-750-110-41 | (BF604:AEP,WG,IT)...MANUAL, INSTRUCTION |
| | 8-952-260-92 | (A602/AF604/BF604:AEP,UK,WG,IT/ B602:AEP,UK)....MDR-W10L/1 SET |
| | 8-952-350-90 | (B602/BF604:E)....EARPHONE MDR-E454 SET |
| | X-3352-016-1 | CLIP ASSY, BELT |

**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

**Note:**
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.